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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/732,979

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EXAMINER

NGUYEN, DILINH P

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

06/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/732,979

Applicant(s)

BRINTZINGER, AXEL

Examiner

DiLinh Nguyen

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-10,28 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-10,28 and 31-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 28 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashiguchi et al. (U.S. Pat. 5828128) (previously applied) in view of Harry et al. (DE 10105351) (newly cited) in view of Joshi et al. (U.S. Pat. 6731003) (previously applied).

Higashiguchi et al. disclose an electronic component (cover fig. and fig. 3) comprising:

a wafer 20;

a plurality of bond pads 24-26 disposed on the wafer;

a plurality of functional 3-D structures 22-23 (fig. 3) disposed on the wafer 20, each functional 3-D structure laterally spaced from an associated one of the plurality of bonding pads 25-26 (cover fig.) including a compliant base element and having a first height; and

a plurality of other 3-D structures 21 disposed on the wafer to provide a mechanical reinforcement, each of the other 3-D structures having a second height that is greater than the first height (figs. 3 and 5, column 7, lines 56-67).

Higashiguchi et al. do not disclose a plurality of reroute traces, each reroute trace extending from and electrically connected to one of the bond pads, the reroute trace further extending onto a surface of one of the functional 3D structure.

However, Harry et al. disclose contact pads 6; a plurality of bumps 10; a reroute trace 9, each reroute trace 9 extending from and electrically connected to one of the bond pad 6, the reroute trace further extending onto a surface of one of the bumps 10 (cover fig., abstract), in order to avoid interference with the chip function.

Joshi et al. disclose an electronic component comprising a functional 3-D structure and a plurality of reroute traces 24 and 26, each reroute trace being electrically connected to one of the bond pad 32 extending onto a surface of one of the functional 3-D structure (fig. 4, column 3, lines 45-52), in order to provide higher resistance and increase likelihood for the semiconductor package (column 6, lines 4-8).

Therefore, it would have been obvious to one having ordinary in the art at the time the invention was made to modify the device structure of Higashiguchi et al. by having a plurality of reroute traces, each reroute trace extending from and electrically connected to one of the bond pads and extending onto a surface of one of the functional 3D structure because as taught by Harry et al. and Joshi et al., in order to avoid interference with the chip function and provide higher resistance and increase likelihood for the semiconductor package.

- Regarding claim 31, Higashiguchi et al. disclose that the plurality of other 3-D structures have a greater height than the functional 3-D structures (figs. 3 and 5);

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therefore, the plurality of other 3-D structures would have a lower degree of compressibility than the functional 3-D structures.

- Regarding claim 32, Higashiguchi et al. disclose that the other 3-D structures 21 are arranged in a regularly distributed manner in an edge region of the wafer 20 (fig. 3).
- Regarding claim 33, Higashiguchi et al. disclose that the other 3-D structures 21 are arranged in a regularly distributed manner over the wafer 20 (figs. 3 and 5).

Claims Allowed

Claims 1-5, 8-10 and 34 are allowed.

Response to Arguments

Applicant's arguments with respect to claims 28 and 31-33 have been considered but are moot in view of the new ground(s) of rejection. See the new grounds of rejection above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 5:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DLN


HOA PHAM
PRIMARY EXAMINER